Lesson Plan

Course Title: **Instructional Objectives**

Total Time: 60 minutes / 1 hour

Objective:

Handouts:

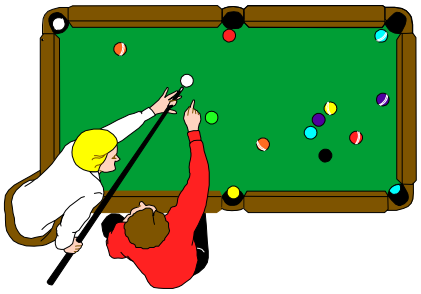
References and Materials:

Equipment:

Content Outline	Instructor Notes

Content Outline	Instructor Notes

Content Outline	Instructor Notes



Instructional Objectives

Objectives:
At the end of this section, the successful learner will be able to:

- Explain the importance of objectives in the instructional process.
- Identify and explain the four main elements of a well-written instructional objective as defined by Robert Mager.
- Write instructional objectives for the 20 minute metadata presentations using Mager's suggested guidelines.
- Explain criterion referenced measurements as defined by Mager.
- List various formal/informal methods of evaluating learners progress in class and explain why it is important to do so.
- Prepare criterion reference measure suitable to assess achievement of the objectives for the 20 minute metadata presentation.

What are objectives

Robert Mager, in Writing Instructional Objectives, defines objectives as:

> "An objective is a written statement, defining in precise terms, **what** the learner will be able to do at the end of the training and **how well**."

An objective describes the specific skill or task you want learners to be able to perform or accomplish before you consider them successful.

The objective focuses on what will happen as a result of instruction rather than how it will happen.

Why should we use objectives in training?

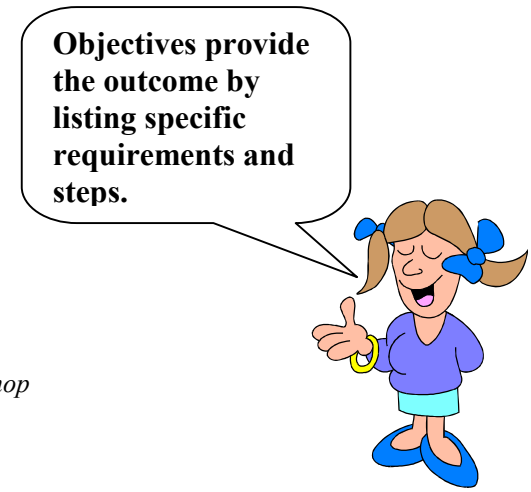
- ✓ They provide direction.
- ✓ They provide guidelines for testing.
- ✓ They convey instructional intent to others.

Goals v. Objectives

Goals and objectives are not the same thing and they can be confused with each other.

Example:
Goal: To develop an awareness and understanding of the Federal Geographic Data Committee's Content Standard for Digital Geospatial Metadata (FGDC/CSDGM).

The goal might provide a good way to promote the workshop.



Example:
Objective: By the end of the session, participants will be able to identify the seven major sections and name the three supporting sections of the FGDC CSDGM.

The objective would be given to participants at the beginning of the workshop so they know what is required of them at the end of the session..

Elements of an Objective

Objectives describe an observable behavior or performance as well as what participants have learned or become familiar. Objectives should be written so that learning can be observed and measured.

There are four main parts of an effective objective:

1. Learner oriented: The focus is on what the learner will be able to do by the end of the session.

2. Performance: Specifies what the learner will be able to do by using action verbs to describe the behavior.

3. Conditions: Describes what the learner will be allowed to use and what will be denied.

4. Criteria: Describes the quality or level of performance that will be considered successful and acceptable.

Examples of Well-Written Objectives

- Given the Federal Geographic Data Committee's Content Standard for Digital Geospatial Metadata workbook, the learner will complete Section 1 in 25 minutes with 85% accuracy.

- Without reference, the learner will identify the two mandatory main sections in the Federal Geographic Data Committee's Content Standard for Digital Geospatial Metadata.

- Using the Graphic Representation, the learner can list at least two types of keyword categories available in the Federal Geographic Data Committee's Content Standard for Digital Geospatial Metadata.

- Using the Federal Geographic Data Committee's Content Standard for Digital Geospatial Metadata workbook, the learner can explain the difference between mandatory, mandatory if applicable, and optional elements.

- Given the Biological Data Profile document, the learner will be able to name the three elements added to the Federal Geographic Data Committee's Content Standard for Digital Geospatial Metadata Standard.

- Given FGDC handout materials, the learner can explain at least two reasons why the FGDC Content Standard for Digital Geospatial Metadata Standard was developed.

- Using the National Spatial Data Infrastructure Clearinghouse web site, the learner can describe at least two ways information can be searched.

Performance

The key to clarity in writing the objective involves using actions verbs that describe the specific behavior the learner will be asked to do. Focus on what the task or skill is that will be performed.

Words open to many interpretations

• To know	• To enjoy
• To understand	• To grasp the significance of
• To really understand	• To have faith in
• To internalize	• To discover
• To appreciate	• To think
• To believe	• To solve

USE ACTION VERBS

Words open to fewer interpretations

✓ To identify	✓ To recite
✓ To name	✓ To solve
✓ To describe	✓ To compare/contrast
✓ To construct	✓ To list
✓ To order	✓ To prepare
✓ To write	✓ To locate

Common Action Words

Add	Explain	Quote
Alphabetize		
Analyze	Finalize	Rearrange
Apply	Fold	Recall
Arrange		Recite
Assemble	Generalize	Rewrite
		Ride
Bend	Identify	Run
Build	Illustrate	Rank
	Indicate	Recognize
Calculate	Infer	Record
Carry	Interpret	Relate
Catch	Isolate	Repeat
Choose		Reproduce
Circle	Judge	Restate
Cite	Justify	Reorganize
Clarify		
Collect	List	Select
Color	Lift	Sequence
Compare	Label	Show
Compute		Solve
Conduct	Make	State
Construct	Mark	Separate
Contrast	Match	Smile
Copy	Modify	Spell
Count	Multiply	Swim
Cut		
	Name	Tell
Decide		Transcribe
Define	Order	Tabulate
Demonstrate		Taste
Describe	Plan	Throw
Design	Point	Translate
Detect	Pick	
Differentiate	Perform	Underline
Discover	Place	Use
Discriminate between	Punctuate	
Discern	Prepare	Write
Discuss	Prove	Walk
Divide	Predict	
Draw		

Exercise: Identifying Performance

Directions: Read the objectives state below. Which ones are stated in terms of clear and effective performance (according to Mager's definition)?

1. Y or N To better understand the history of the Executive Order 12906.
2. Y or N To know the steps for using Metadata Parser.
3. Y or N To explain the difference between a mandatory and mandatory if applicable element.
4. Y or N To detail the steps for setting up a Clearinghouse node.
5. Y or N To discuss the major sections of the metadata standard.
6. Y or N To appreciate how the metadata standard has affected GIS technology.
7. Y or N To list the steps for getting a profile FGDC endorsed.
8. Y or N To describe the International Organization for Standardization.
9. Y or N To really understand the spatial elements of Section 4.
10. Y or N To identify the mandatory elements in Distribution Information.

Conditions

The *condition* part of an objective includes a description of relevant or important situations or circumstances under which the learner will be expected to perform. This could involve listing what the learner will be allowed to use or what the learner will be denied.

In writing objectives, conditions answer the questions:

- What will the learner be allowed to use?
- What will the learner be denied?
- Under what conditions will you expect the desired performance to occur?

How detailed should you be?

Be sure that the target performance would be recognized by another person. Write so that another person can read your objectives and be able to understand them.

Conditions can be stated in a negative sense ("without the use of handouts") or with no "given" at all.

<u>Examples of terms for "conditions"</u>

Given a checklist, notes, and manual
Given the FGDC metadata standard
Given a complete technical manual
Given a set of blueprints
Given a calculator
Under simulated conditions
Using all of the parts
Using the graphic representation
Using any equipment needed
Using your notes
Without the use of a manual
Without the use of a calculator
With the aid of a checklist

Criteria

The criteria tells "how well" you expect the learner to perform. It is considered the standard by which performance is evaluated. Only impose criteria that are relevant and important. If you specify a minimum acceptable performance for an objective, you also have a standard which you can test your instruction.

Characteristics of criteria:

Speed (time limit)

* Given section 1 definitions, complete the exercise in 20 minutes.

Accuracy

* The learner will correctly list at least 80% of the mandatory fields in Section 7.

Quality

* Using the Metadata Parser tool, the learner will process a metadata record. The final record must have less than 2 errors.

Criteria can also be identified non explicitly through **references** (according to FGDC Content Standard for Digital Geospatial Metadata 1998); **procedure** (compare with existing metadata records); or **examples** (as demonstrated in the videotape).

Examples of common terms for "criteria"

Accurate to ____ decimal points
At least 8 out of 10 attempts
At least ____ per cent correct
At least ____ within an hour
At ____ per hour
Before sunset
Having all correct
In the specified sequence
With at least ____ correct
Within ____ minutes
Within ____ tolerance
Without error
With no more than ____ errors

Writing objectives

Writing objectives can be difficult. An easy way to start writing objectives is by filling in spaces in the formula below:

By the end of this session, the participant will be able to (action word) _____ (item) _____ (conditions) _____ (criteria) _____

The action word is something we can observe; the item is normally an object or item from the session; the conditions are what's given and any variables; and the criteria is our measurable standard.

Example

By the end of this session, the participant will be able to (action word) _**Complete**_____ (item) _____**Section 1**_____ (conditions) __**Given the Federal Geographic Data Committee's Content Standard for Digital Geospatial Metadata workbook** _____ (criteria) _____**in 25 minutes with 85% accuracy** _____

Exercise: Practice Writing Objectives

Directions: Rewrite the following poorly written objectives using Mager's three part format (performance, conditions, criteria).

1. Fully appreciate the steps for establishing a Clearinghouse node.

2. Know how to create a metadata record.

3. Teach students to enjoy using Metadata Parser.

4. Believe in the objectives of the Executive Order 12906.

5. Appreciate the history of the Federal Geographic Data Committee.

6. Grasp the significance of Section 2 Data Quality.

7. Teach the use of a metadata tool.

8. Fully understand the value of a Distribution Liability Statement.

9. Appreciate the fine points of the FGDC metadata standard structure.

10. Internalize the advantages and disadvantages of using stand alone versus on-line metadata entry tools.

Criterion Test

A criterion test is a series of questions, exercises or activities that measures the skill or knowledge of the learner against the specified criteria of an objective. The purpose of criterion testing is to measure the amount of learning (new skill or knowledge) acquired during the training.

What are the ways we have measured learning in this class so far?

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Exercise: Writing Objectives for Your Metadata Presentation

Write an instructional objective(s) for your 20 minute presentation. Keep in mind Mager's principles. You might find it helpful to use the writing objectives formula on Page 9. Remember to answer these questions:

- Who will perform the task?
- What is the skill or task to be performed?
- What will the learner work with or without while performing the task?
- What is the minimum level of performance?

In a following section, we will be discussing the various methods of instruction. Keep your objectives in mind while going through that section to identify appropriate methods of measuring your objectives.

Summary

- Identified the difference between goals and objectives.
- Discussed the four main elements of an effective objective (Learner oriented, Performance, Conditions, and Criteria).
- Rewrote poorly written objectives.
- Wrote objectives for your 20 minute metadata presentation.